

## REMARKS

Claim 1 is amended, without new matter, to recite that the printed circuit board is networked with the firmware server, as for example shown and described in connection with FIG. 2. Claims 1-23 remain pending in this application, of which claims 1, 9 and 13 are independent.

## CLAIM REJECTIONS

Claims 1-23 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,055,632 to Deegan et al. (hereinafter "Deegan") in view of U.S. Patent No. 6,167,385 to Othmer et al. (hereinafter "Othmer"). Respectfully, we disagree.

In making an assessment under 35 U.S.C. §103(a), the claimed invention as a whole must be considered; inventions typically are new combinations of existing principles or features. See *Ruiz v. A.B. Chance Co.*, 69 USPQ2d 1686 (CA FC 2004). This assessment thus prevents evaluation of the invention part by part. "Without this important requirement, an obviousness assessment might break an invention into its component parts (A + B + C), then find a prior art reference containing A, another containing B, and another containing C, and on that basis alone declare the invention obvious. This form of hindsight reasoning, using the invention as a roadmap to find its prior art components, would discount the value of combining various existing features or principles in a new way to achieve a new result - often the very definition of invention." *Id.*

Further, 35 U.S.C. §103(a) precludes this hindsight and the discounting of the value of new combinations. Rather, the Examiner is required to show that "an artisan of ordinary skill in the art at the time of invention, confronted by the same problems as the inventor and with no knowledge of the claimed invention, would select the various elements from the prior art and combine them in the claimed manner. In other words, the examiner ... must show some suggestion or motivation, before the invention itself, to make the new combination." See *In re Rouffet*, 149 F.3d 1350, 1355-56 (Fed. Cir. 1998).

In addition, MPEP §2141.01(a) requires that a reference must be analogous prior art if it is to be relied upon in support of a rejection under 35 U.S.C. §103. A two-part test is invoked:

- the reference must either be in the field of applicant's endeavor, or
- be reasonably pertinent to the particular problem with which the inventor was concerned.

Under these guidelines, the present 35 U.S.C. §103(a) rejection cannot stand because (1) Othmer is non-analogous art and (2) there is no motivation or suggestion to combine references as proposed. Finally, (3), even if combined, Othmer and Deegan would not render claims 1-23. Let's now consider these issues (1)-(3) separately.

First with regard to issue (1), Othmer discloses remotely monitoring of a plurality of computer-based systems connected to a server (see Othmer Abstract). Applicants' claims 1-23 provide for implementing firmware updates to a programmable part within a printed circuit board. In formulating these claims, Applicants would not have consulted the art of monitoring computer-based systems connected to a server. For example, Applicants have addressed the problem of releasing new firmware updates to a programmable part within a circuit board, as described in paragraph [0007] of the specification. Othmer is in a different field of endeavor because nothing in Othmer teaches or suggests updating firmware, nor updating firmware of a programmable part in a circuit board.

Othmer also fails to meet the second part of the two-part test (see MPEP §2141.01(a)) regarding analogous art because Othmer is not reasonably pertinent to the particular problem with which the Applicants were concerned. Page 4 of the office action dated July 30, 2004 recites that motivation to combine is found in Othmer at column 5, lines 35-52, i.e., each computer system periodically polls the server to determine what is the current version of the configuration file. However, according to Othmer, "periodically polling the server" only occurs when "...the computer based systems does[sic] not have static IP addresses and thus cannot be addressed..." See Othmer, col. 5, lines 41-48. Since, for example, the immediate application does not address the problems of a system that "cannot be addressed" or

determining a current version of the configuration file, Othmer is once again non-analogous art.

With regard to issue (2), Applicants also traverse the combination of Deegan with Othmer because the alleged motivation to combine is insufficient to provide a prima facie case of obviousness. As noted above, the prior art must suggest the desirability of the combination according to factors specified in MPEP §2141, such as considering the invention as a whole. "The determination of whether a novel structure is or is not 'obvious' requires cognizance of the properties of that structure and the problem which it solves, viewed in light of the teachings of the prior art." *In re Wright*, 6 USPQ2d 1959, 1961 (Fed. Cir. 1961); *see, e.g., In re Rinehart*, 189 USPQ 143, 149 (CCPA 1976) (the particular problem facing the inventor must be considered in determining obviousness); *see also Lindemann Maschinenfabrik GmbH v. American Hoist and Derrick Co.*, 221 USPQ 481, 488 (Fed. Cir. 1984) (it is error to focus "solely on the product created, rather than on the obviousness or nonobviousness of its creation").

Accordingly, neither Deegan nor Othmer has any suggestion or motivation to combine with one another. The Examiner appears to rely upon motivation of one skilled in the art because "it would extend the firmware update to more than one computer (printed circuit board), and thus would not require user's presence for checking the availabilities of server and updated firmware" (page 4 of pending office action). Such reliance depends, however, upon a hindsight view of claims 1-23 in comparison to Deegan and Othmer (non-analogous art). This is even more apparent when considered with issue (3).

Specifically, in regard to issue (3), neither Deegan nor Othmer teaches or suggests automatically polling a firmware server to download firmware to program a programmable part of a printed circuit board. For example, amended claim 1 recites a method of implementing firmware updates to a programmable part within a printed circuit board, and requires the following steps:

- a) creating an image file of firmware used to program the part; storing the image file at a firmware server;
- b) integrating the programmable part with the printed circuit board;
- c) networking the printed circuit board with the firmware server; and

- d) automatically polling the firmware server to download the firmware to program the programmable part.

As pointed out by the Examiner, in Othmer “each computer based system periodically polls the server.” However, Othmer teaches away from networking with a printed circuit board by disclosing a system that monitors “a software application or a microprocessor on a distributed set of client computers in order to determine information...”. Othmer, col. 4, lines 19-24. This is clearly not, therefore, polling to download firmware as in claim 1.

Further, as noted above, Othmer teaches “periodically polling the server” only when “...the computer based systems does[*sic*] not have static IP addresses and thus cannot be addressed...”. Othmer, col. 5, lines 41-48. The claims of the immediate application clearly do not involve polling due to unaddressable computer systems.

Like other claims below, claim 1 is therefore not obvious in view of Othmer and Deegan. Reconsideration is requested.

Claims 2-8, 21 and 22 depend from claim 1 and benefit from like arguments; but these claims have additional features that patentably distinguish over Deegan and/or Othmer. For example, claim 2 recites the step of automatically polling includes downloading the firmware to the printed circuit board. Neither Othmer nor Deegan discloses ‘automatic polling’ to download firmware to the printed circuit board. Othmer in particular does not disclose or suggest that polling is used to transfer firmware, but rather that it is used to determine “the current version of the configuration file” [Othmer col. 5 lines 44-45].

Claim 5 recites updating the image file at the firmware server, wherein subsequent download of the image file to a programmable part is seamless to the updated firmware. The Examiner states that Deegan teaches that subsequent download of the image file to the programmable part is ‘seamless’ to the updated firmware. Applicant respectfully disagrees. The term ‘seamless’ is applied by the immediate application to the transition between programming a first firmware version in part 20 to programming a second firmware version in part 20. That is, “an engineer desiring to update image file 17 to a newer revision for programming part 20 can thus update part 20 by communicating the later revision firmware from his computer 70

connected to firmware server 12” and that “continued programming of parts 20 may occur without special configuration or communication indicating the newer revision.” See paragraph 0026 of the immediate application. Deegan discloses that “the process is repeated until the entire firmware upgrade has been burned into the non-volatile memory.” See Deegan col. 8, lines 53-55. Deegan, therefore, does not describe ‘seamless’ updating of programmable parts with a new firmware version.

Claim 9 recites a system for programming programmable parts in a manufacturing line, including:

- a) a firmware server connected to a network for storing one or more firmware image files;
- b) one or more interface servers with the manufacturing line and connected to the network, for capturing at least one of the firmware image files from the firmware server; and
- c) one or more printed circuit boards having one or more programmable parts and connected with at least one of the interface servers, the printed circuit boards polling the firmware server to download at least one of the firmware image files and program at least one of the programmable parts with firmware corresponding to at least one firmware image file.

The arguments above for claim 1 also apply here. For example, neither Deegan nor Othmer disclose or suggest programming programmable parts of printed circuit boards in a manufacturing line as required by claim 9. Othmer is, again, non-analogous art. Deegan and Othmer, again, do not teach and suggest the elements of claim 9. For example, Othmer teaches away from claim 9 by disclosing polling of computer systems when addressing is unavailable and only for information (not to download firmware), as discussed above.

Claim 10-12 and 23 depend from claim 9 and there benefit from like argument. These claims also have additional features that patentably distinguish over Deegan and/or Othmer. For example, claim 10 recites one of the interface servers sequentially connects with a plurality of printed circuit boards. Deegan does not show a plurality of printed circuit boards connected to one interface server. The Examiner identifies DAUGHTER BOARD 30 of Deegan as an ‘interface server’; but since

DAUGHTER BOARD 30 and MOTHERBOARD 20 “are attached to each other through an appropriate mounting scheme” [Deegan col. 5, lines 25-30] there is a one-to-one relationship between DAUGHTERBOARD 30 and MOTHERBOARD 20. This does not teach or suggest claim 10.

With regard to claim 12, the Examiner infers that Applicant’s connector 30 is “a conventional connector of a computer connector port.” [see office action page 8]. Contrary to the Examiner’s assertion, a connector of the immediate application may have “a plurality of pins 32 arranged in a programming configuration to couple with PCB 24” and “may connect directly to part 20, in a pin-specific configuration of pins 32”. See immediate application paragraph 0022. Such a connector is not therefore a conventional connector of a computer connected port, to interface a daughter board to a mother board.

Claim 13 requires the following steps:

- a) creating one or more image files of firmware used to program the parts;
- b) storing the image files at a firmware server; and
- c) polling the firmware server such that at least one of the image files downloads to at least one of the circuit boards for programming at least one of the programmable parts.

The arguments above for claim 1 also apply to claim 13. For example, neither Deegan nor Othmer discloses or suggests programming programmable parts of circuit boards through polling and downloading. Othmer is, again, non-analogous art. Deegan and Othmer, again, do not teach and suggest the elements of claim 13. For example, Othmer teaches away from claim 13 by disclosing polling of computer systems when addressing is unavailable and only for information (not to download firmware), as discussed above.

Claims 14-20 depend from claim 13 and benefit from like arguments. However, as in other dependent claims discussed above, these claims have additional reasons to patentably distinguish over Deegan and Othmer.

For the reasons discussed above, Applicant believes that claims 1-23 are non-obvious in view of Deegan and Othmer. Reconsideration and allowance of all claims are now requested.

Applicants believe no fees are due in connection with this Response; however, if any fee is deemed necessary, the Examiner is authorized to charge such fee to Deposit Account No. 08-2025.

Respectfully submitted,

By: Curtis A. Vock

Curtis A. Vock, Reg. No. 38,356  
LATHROP & GAGE L.C.  
4845 Pearl East Circle, Suite 302  
Boulder, CO 80301  
Telephone: (720) 931-3011  
Facsimile: (720) 931-3001